

# NIDIS Weekly Climate, Water and Drought Assessment Summary

Upper Colorado River Basin

August 2, 2011

# Precipitation and Snowpack

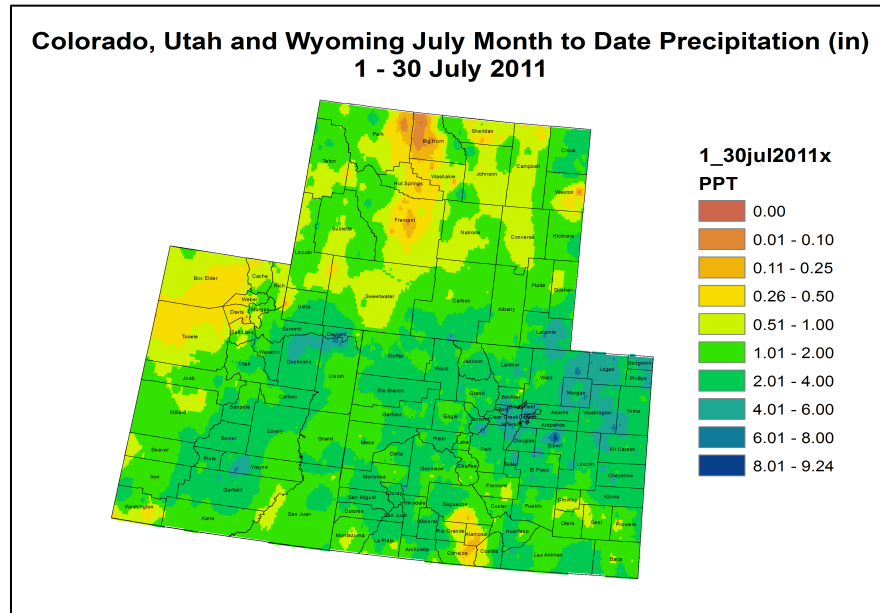


Fig. 1: July month-to-date precipitation in inches.

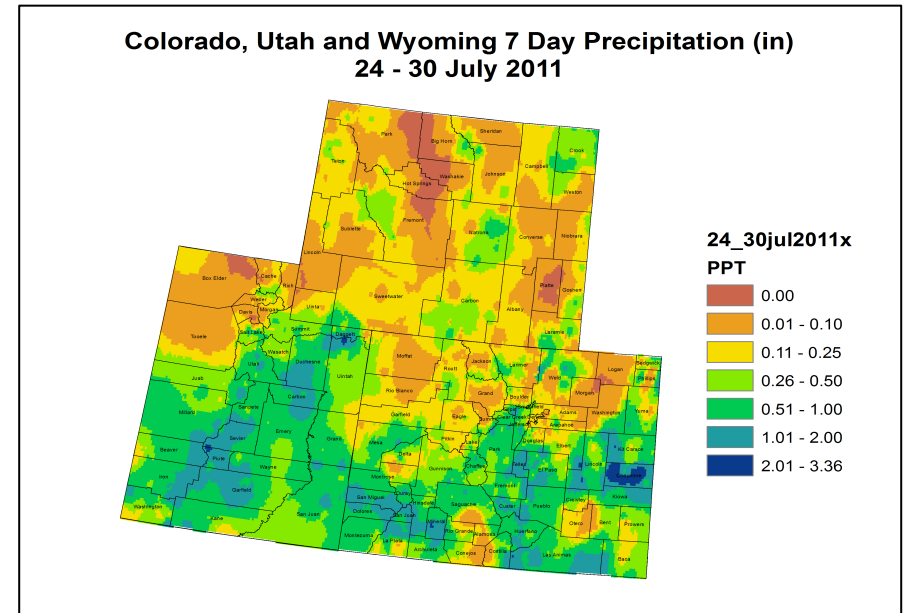


Fig. 2: July 24 – 30 precipitation in inches.

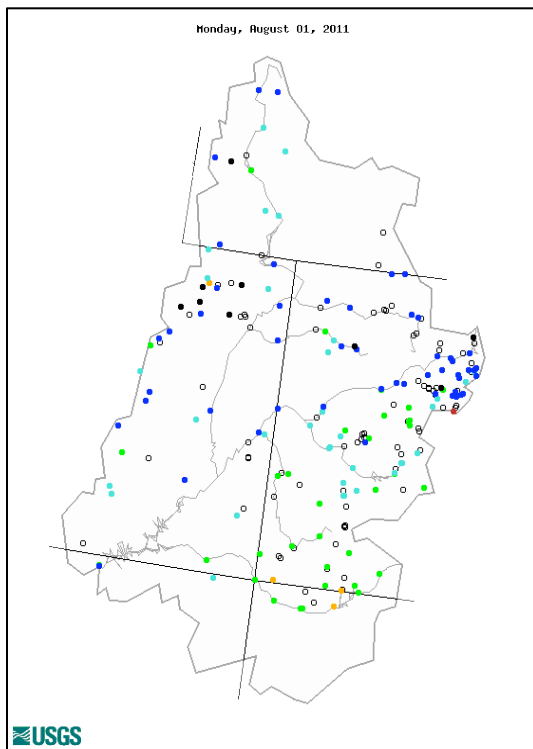
For the month of July, most of the Upper Colorado River Basin (UCRB) received between 1 and 4 inches of precipitation (Fig. 1). Portions of the Upper Green River basin in Wyoming were the driest, receiving less than an inch of moisture for the month, while northeast Colorado has remained wet, with many areas receiving between 4 and 6 inches of precipitation. Southeast CO also received some beneficial moisture. The San Luis Valley remained relatively dry, seeing less than a quarter inch for the month in some spots.

Last week, the heaviest amounts of moisture fell in the southern part of the UCRB, in northeast Utah, and in eastern CO (Fig. 2). The Four Corners region saw around half an inch to 2 inches of while some spots in eastern CO received around 3 inches of precipitation for the week. Many of the drought affected regions in southeast CO received beneficial rains with amounts between half an inch to 2 inches. Southwest WY, northern CO, and the San Luis Valley remained fairly dry, receiving less than a tenth of an inch of moisture for the week.

# Streamflow and Water Supply

As of August 1<sup>st</sup>, about 96% of the USGS streamgages in the UCRB recorded normal (25<sup>th</sup> – 75<sup>th</sup> percentile) or above normal 7-day average streamflows with 70% of the gages recording flows above the 75<sup>th</sup> percentile and 30% reporting high flows (Fig. 3). Key gages on the Colorado River near the CO-UT state line and the Green River at Green River, UT have above normal 7-day average streamflow at the 92<sup>nd</sup> and 96<sup>th</sup> percentiles, respectively (Fig. 4). Streamflow on the San Juan River near Bluff, UT is at the 51<sup>st</sup> percentile.

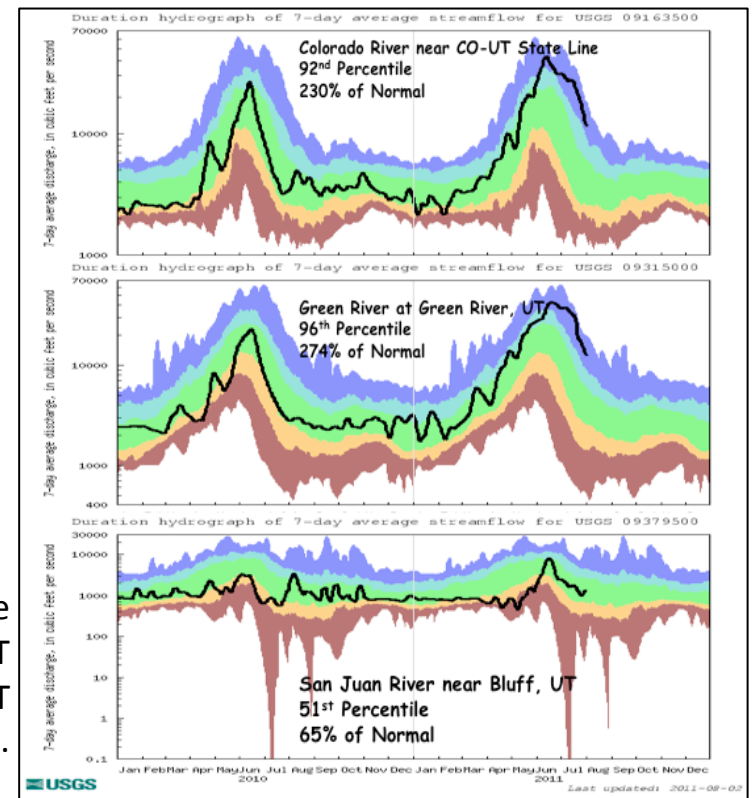
Flaming Gorge, Granby, Green Mountain, Dillon, and Blue Mesa reservoirs saw large storage volume increases for the month of July. Storage volumes at McPhee, Navajo, Blue Mesa, and Lake Powell are now decreasing. All of the major reservoirs above Lake Powell are currently above their average August levels. Lake Powell's storage increased 7% for the month of July and is currently at 91% of average. Powell's current level is the highest August level it's been since 2001.



Explanation - Percentile classes							
<span style="color: red;">●</span>	<span style="color: red;">●</span>	<span style="color: orange;">●</span>	<span style="color: green;">●</span>	<span style="color: cyan;">●</span>	<span style="color: blue;">●</span>	<span style="color: black;">●</span>	<span style="color: gray;">●</span>
Low	<10	10-24	25-75	76-90	>90	High	Not-ranked
	Much below normal	Below normal	Normal	Above normal	Much above normal		

Fig. 3: 7-day average discharge compared to historical discharge for August 1<sup>st</sup>.

Fig. 4: USGS 7-day average discharge over time at the CO-UT stateline (top), Green River, UT (middle) and Bluff, UT (bottom).



# Water Demand

For July, near average temperatures were seen across most of the UCRB, with warmer than average temperatures over the Four Corners region and east of the UCRB. The warmer temperatures have contributed to higher reference evapotranspiration (refET) in drought stricken areas. In the Four Corners, refET is currently just above average, on track with the drier years. In the San Luis Valley and in the Arkansas basin, refET is currently tracking above the highest refET year, during the drought of 2002 (Fig. 5)—so precipitation falling in those areas could be quickly lost to the atmosphere again. However, with recent consistent rains, a little relief has been seen with refET rates declining slightly in the last two weeks.

Soil moisture conditions remain poor for the San Luis Valley and southeast CO. Soil moisture is above average throughout much of UT and throughout northern CO. Satellite imagery of vegetation conditions show very dry vegetation with little growth in the San Luis Valley and southeast CO (Fig. 6). Vegetations conditions are moist for the northern portion of the UCRB, slightly dry in the Four Corners area, and are near average for northeast CO.

## Precipitation Forecast

Abundant moisture associated with Tropical Storm Don will move over the eastern half of the UCRB tonight through Wednesday morning, leading to numerous thunderstorms capable of producing very heavy rainfall in a short period of time. Areas in southwest and central CO have the best chance of receiving heavy rainfall, where local amounts of 1 to 2 inches will be common before storms move east onto the plains. Expect to see another round of scattered to numerous thunderstorms again on Wednesday, with a similar focus of precipitation in the mountains of southwest and central CO and then onto the plains. Eastern and northern portions of UT will see scattered thunderstorm activity through these two days, but amounts will generally be under 0.25 inches. Thursday, the atmosphere begins to dry out, and any heavy rain should be more isolated. The dry trend continues into the weekend as sub-tropical moisture is deflected south and east of the basin by strong westerly winds. Drought stricken areas in the far southeastern part of the basin will still be affected by this moisture Friday and Saturday while the rest of the region dries out. By early next week forecast models indicate a resurgence in monsoonal moisture, mainly across southern portions of the UCRB.

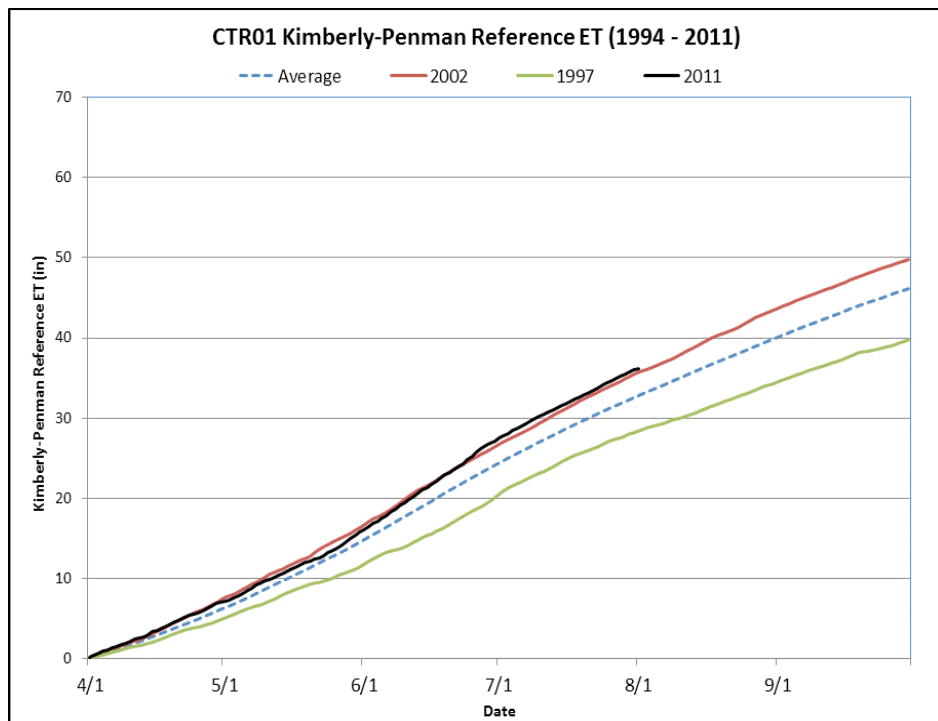


Fig. 5: Reference evapotranspiration since April 1<sup>st</sup> at Center, CO in the San Luis Valley.

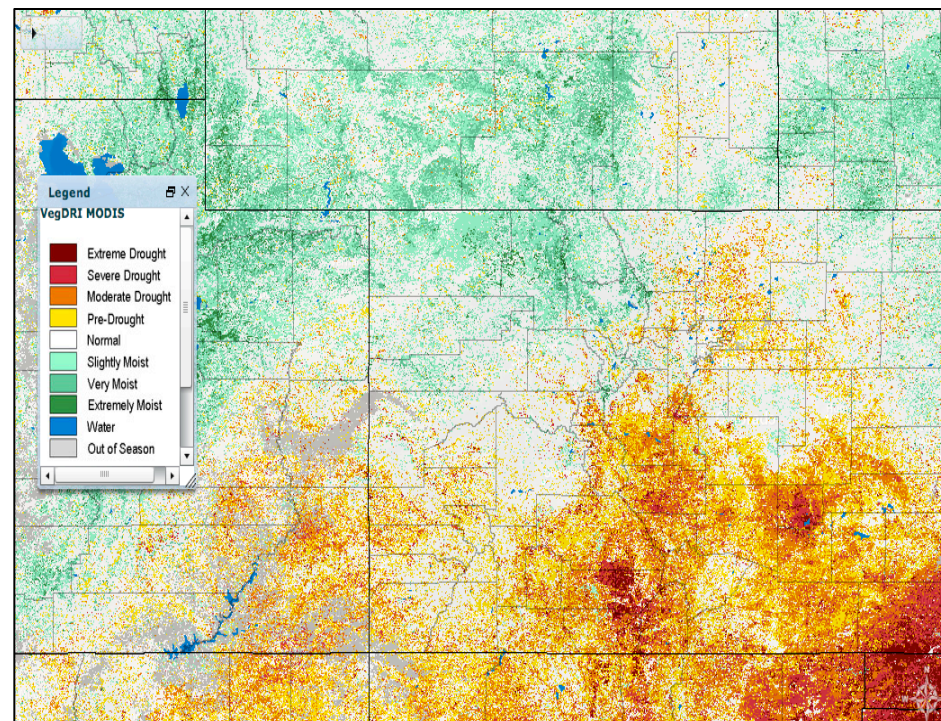


Fig. 6: July 31<sup>st</sup> VegDRI map, based on satellite-derived observations of vegetation.



# Drought and Water Discussion

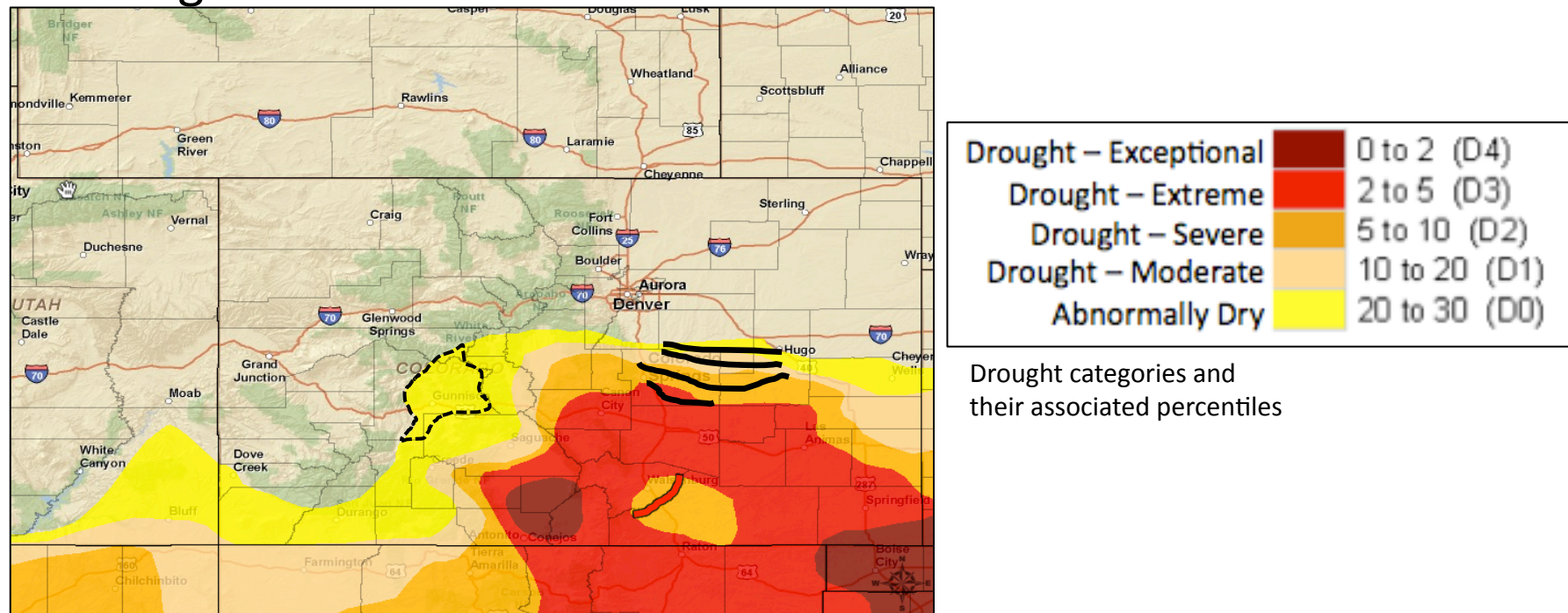


Fig. 7: July 26<sup>th</sup> release of U.S. Drought Monitor for the UCRB

One change is recommended in the UCRB for the current U.S. Drought Monitor (USDM) map—no indicators point to abnormal dryness in Gunnison County, so a removal of D0 is recommended (Fig. 7, dashed line).

Some beneficial rains have fallen over southeast CO. This has resulted in the greening of the grasses but no new growth. Drought impacts and very dry conditions are still evident throughout Crowley, Kiowa, Otero, Las Animas, Baca and Prowers counties. The rains have been beneficial enough further north to warrant some improvements in Elbert, Lincoln and El Paso counties (Fig. 7, solid black lines).

Reports of very dry conditions in Walsenburg, CO suggest that an expansion of D3 to cover the rest of Huerfano County is warranted (Fig. 7, red line). At this time, no further coverage in Las Animas seems necessary as VegDRI does indicate greener vegetation in that area.